THIRD FIVE-YEAR REVIEW REPORT FOR FRONTIER HARD CHROME SUPERFUND SITE VANCOUVER, WASHINGTON

January 2018

Prepared by

U.S. Environmental Protection Agency
Region 10
Seattle, Washington

Sheryl Bilbrey, Director
Office of Environmental Cleanup
U.S. EPA Region 10

1/29/2018
Date

Table of Contents

LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Ecology	Washington Department of Ecology
EPA	United States Environmental Protection Agency
FCOR	Final Close-Out Report
FYR	Five-Year Review
FHC	Frontier Hard Chrome
ICs	Institutional Controls
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives
ROD	Record of Decision
RODA	Amendment to the Record of Decision
RPM	Remedial Project Manager
Site	Frontier Hard Chrome Superfund Site
UU/UE	Unlimited use and unrestricted exposure

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this five-year review pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 U.S.C. § 9621(c), consistent with the National Contingency Plan (NCP)(40 C.F.R. Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the third FYR for the Frontier Hard Chrome (FHC) Superfund Site (Site). The triggering action for this policy review is the previous FYR dated January 29, 2013. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of two (2) Operable Unite (OUs). Both will be addressed in this FYR. OU1 addresses the soils and source area and OU2 addresses groundwater.

The Frontier Hard Chrome Superfund Site Third Five-Year Review was led by Jeremy Jennings, EPA's Remedial Project Manger (RPM) for the Site. Participants included Bernie Zavala, EPA hydrogeologist; Julius Nwosu, EPA risk assessor and Panjini Balaraju, Washington State Department of Ecology (Ecology) Project Manager. The property owner, Mark Fleischauer, Grand Boulevard Investments LLC was notified of the initiation of the FYR. The review began on 11/15/2017.

Site Background

The 1/2-acre Site is located in southeastern Vancouver, Washington at 113 Y Street approximately ¾ mile north of the Columbia River. The area was once dominated by light industry but is being redeveloped as a commercial and mixed use area.

From 1958 to 1983, the Site was occupied by two chrome plating businesses, Pioneer Plating (1958 to 1970) and Frontier Hard Chrome (1970 to 1983). Since 1983, the Site has been used by various businesses and is currently being developed for commercial uses.

In 1976, untreated chromium plating wastes from the Site were rerouted from the sanitary sewer to an on-Site dry well. In 1982, an industrial supply well about ¼ mile from the Site was found to be contaminated with chromium at more than twice the federal drinking water standard (MCL). The chrome plating business at the Site closed in 1983.

In December 1982, EPA proposed that the Site be included on the national priorities list (NPL) established by EPA under Section 105(a) of CERCLA, 42 U.S.C. § 9605(a). Following

consideration of public comments, the listing was finalized by EPA in September 1983. (47 F.R. 58476, 48 F.R. 40658)

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Frontier Hard Chrome Superfund Site		
EPA ID: WAD053614988		
Region: 10	**State:** WA	**City/County:** Vancouver/Clark County
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA		
Author name (Federal or State Project Manager): Jeremy Jennings		
Author affiliation: US EPA Region 10		
Review period: 11/15/2017 - 1/12/2018		
Date of Site inspection: 11/29/2017		
Type of review: Policy		
Review number: 3		
Triggering action date: 1/29/2013		
Due date *(five years after triggering action date)*: 1/29/2018		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

Chromium is the hazardous contaminant of concern at the Site. The primary route of exposure is ingestion of chromium in groundwater. For the protection of human health, the Record of Decision (ROD) established soil and groundwater cleanup levels for total chromium while soil and groundwater samples were analyzed for total and hexavalent chromium.

Response Actions

A remedial investigation and feasibility study were completed by Ecology between 1984 and 1987. In 1994, Ecology excavated 160 cubic yards contaminated source material from the easternmost

portion of the Site and disposed it off-Site.

An OU1 ROD, issued by EPA in December 1987, required excavation, stabilization and off-Site disposal of all soils with total chromium concentrations greater than 550 mg/kg (approximately 7,400 cubic yards). A ROD for the groundwater remedy (OU2), issued by EPA in July 1988, selected a remedy of extraction and treatment of contaminated groundwater.

During the remedial design for OU 1, bench scale tests indicated that the stabilization methods selected in the remedy would likely not be effective at preventing the leaching of hexavalent chromium from Site soils. In response, EPA initiated a Focused Feasibility Study that identified and evaluated several new and innovative technologies for addressing the contamination remaining at the Site. An in-situ treatment was further evaluated in a bench scale test in February 2001. The results of a bench scale test indicated that one of the new in-situ treatment technologies, In-Situ Redox Manipulation ("ISRM"), would be appropriate for use at the Site. In August 2001, EPA issued a ROD amendment (RODA) for OU1 and OU2 that changed the remedial action for the Site to ISRM with groundwater monitoring.

Remedial Action Objectives

The RODA established the following Remedial Action Objectives ("RAOs") for contaminated soils:

> *Prevent hexavalent chromium in soils from serving as an uncontrolled, ongoing source of contamination to groundwater.*
>
> *Prevent current and future exposure to soil contaminated with chromium above state standards for unrestricted future use.*

In addition, the following RAOs were established for contaminated groundwater:

> *Restore all hexavalent chromium-contaminated groundwater to state standards ("Model Toxic Control Act" or "MTCA" Method A standards).*
>
> *Prevent ingestion of hexavalent chromium-contaminated groundwater above state groundwater cleanup standards (MTCA Method A standards).*
>
> *Prevent chromium-contaminated groundwater from seeping into the Columbia River above chronic state standards for the protection of fresh water aquatic organisms.*

Cleanup Levels

Cleanup levels specified in the RODA are listed in Table 1.

Remedy

The RODA selected a remedy that required ISRM treatment and groundwater monitoring. Following are the major components of the remedy.

Table 1: **Cleanup Levels Identified in RODA, Frontier Hard Chrome Superfund Site**

Medium	Chemical of Concern	Cleanup Level	Source of Cleanup Level
Groundwater	Total Chromium	50 µg/L	MTCA Method A
		100 µg/L	Federal Safe Drinking Water Act MCL
		10.5 µg/L	State Chronic Surface Water Stds
Soil	Hexavalent Chromium	19 mg/kg	MTCA Method A
	Hexavalent Chromium	400 mg/kg	MTCA Method B
	Trivalent Chromium	80,000 mg/kg	MTCA Method B

Contain Highly-Contaminated Groundwater

The most heavily contaminated groundwater at the Site (the groundwater hot spot) was to be contained through injection of reducing compounds into soils and groundwater on the downgradient side of the soils source area. The injected compounds were to react with naturally occurring iron in the soils to create a permeable reactive zone where the hexavalent chromium in the groundwater would be reduced to trivalent chromium. This ISRM zone/barrier was to be in place prior to treatment of the soils source area and the groundwater "hot spot" in order to provide containment of the hot spot as quickly as possible, protection of downgradient groundwater during remedy implementation and long-term protection against future leaching of hexavalent chromium.

In-Situ Treatment of Source Area Soils and Groundwater Hot Spot

In-situ treatment of the soils source area and the groundwater hot spot was to occur through the delivery of reducing compounds directly to Site soils with levels of hexavalent chromium exceeding 19 mg/kg, and to contaminated groundwater with concentrations of hexavalent chromium exceeding 5,000 µg/L. The reducing agent was to be delivered through injection into auger holes or injection wells. After treatment, the augured soils were to be compacted in order to allow for future use of the affected property.

Groundwater Restoration

Following treatment, natural dispersion and dilution was projected to restore groundwater that exceeded the state groundwater cleanup level of 50 µg/L (MTCA Method A, total chromium). Regular monitoring of downgradient groundwater was to be conducted until all remaining groundwater met the cleanup level.

Institutional Controls

Institutional controls (ICs) were to be evaluated during the remedial design and implemented after the cleanup portion of the remedial action to prevent 1) access to contaminated groundwater, 2) access to soils contaminated with residual concentrations of hexavalent chromium above state MTCA Method A levels (if applicable), and 3) future activities that threaten to remobilize chromium in Site soils. To implement the institutional controls, it was anticipated that there would be deed notices and restrictions on certain activities at the Site.

Status of Implementation

Remedy implementation began in January 2003 with Phase I building demolition. The ISRM wall was installed between April and August 2003. Phase II building demolition occurred in May 2003. Source area treatment was initiated and completed in August 2003. The site achieved construction completion status when the Preliminary Close Out Report was signed on September 22, 2003. Long term operations and maintenance have been ongoing.

For additional detail regarding implementation of the remedy, see EPA's previous FYRs and the January 2018 Final Close-Out Report (FCOR).

Institutional Controls

An Institutional Control Plan ("ICP") was prepared by EPA in December 2003. Based on the local and state controls already in place, EPA found that it was not necessary to implement any ICs for groundwater downgradient of the Site. Even so, in 2004, prior to purchasing the property, EPA entered into an Agreement and Covenant Not to Sue with the Kelly Development LLC and its affiliates (Kelly). The Agreement required Kelly to abide by seven (7) institutional controls, including prohibitions on the installation of groundwater wells and use of groundwater, as well as restrictions related to the movement or excavation of soil. These ICs were designed to eliminate human exposure to contamination that might be present following implementation of the remedy, and were included in the property deeds for the property. Based on the determination that the Site has been cleaned up to allow for UU/UE, ICs are no longer required as part the CERCLA remedy. The ICs are summarized in the IC Summary Table.

Table 2: Summary of Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Groundwater	No	Yes	2.6 acres in Lots 2 & 3 of Blurock Homestead Lots, Vancouver, WA	Prevent exposure through drinking water derived for wells in the impacted area.	Agreement and Covenant not to Sue. Filed with County. July 17, 2004.
Soils	No	Yes	2.6 acres in Lots 2 & 3 of Blurock Homestead Lots, Vancouver, WA	Prevent exposure to hazardous substances during excavation or other disturbance of soils.	Agreement and Covenant not to Sue. Filed with County. July 17, 2004.

Systems Operations/Operation & Maintenance

Long-term monitoring was the only activity required following implementation of the remedy, Site wells were sampled four (4) times since completion of the last FYR. In 2016, EPA received a request from

Kelly to decommission the 11 monitoring wells on the FHC/Kelly property in order to allow for redevelopment of this property. As part of the request, Kelly agreed to sample the on-site wells and submit the sample results to EPA. Following review of the data, EPA approved the request and Kelly decommissioned the wells (MFA, October, 2016b). An attainment analysis presented in the January 2018 FCOR determined that the OU1 remedy had been successfully implemented and groundwater cleanup levels and RAOs for OU2 had been attained, therefore no further action was required for OU1 or OU2. No further monitoring or ongoing maintenance will be required in the future (FCOR, 2018). However, it is recommended that the groundwater monitoring wells be decommissioned consistent with State regulations, and that the State Superfund Contract for the Site be terminated.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the **last** five-year review as well as the recommendations from the **last** five-year review and the current status of those recommendations.

Table 3: **Protectiveness Determinations/Statements from the 2013 FYR**

OU #	Protectiveness Determination	Protectiveness Statement
1	Protective	The remedy at OU 1 (soils/source area) is protective of human health and the environment and exposure pathways that could result in unacceptable risks have been eliminated as a result of soils/source area remedial action.
2	Protective	The remedy at OU 2 (groundwater) is protective of human health and the environment. Exposure pathways that could result in unacceptable risks are being controlled through remedial action and institutional controls.
Sitewide	Protective	Because the remedial actions at both OUs are protective, the Site is protective of human health and the environment.

There were no issues and recommendations that affected either current or future protectiveness of the site.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available on the Site's web page (https://www.epa.gov/superfund/frontier-chrome) and postcards were mailed to the Site's mail list (Appendix B). The notifications announced the start of the five-year review and invited the public to submit comments to EPA. No comments were received.

EPA also contacted Ecology and the landowner to provide them with an opportunity to discuss the status of the remedy and identify any concerns. Both said they supported EPA's efforts to close out the remedial action and did not express any concerns. Upon completion, the FYR will be made available on the Site's web page and at the Region 10 Records Center, 1200 Sixth Avenue, Suite 900, Seattle, WA 98101.

Data Review

In 2016, Kelly agreed to sample the on-site wells as part of a request for well abandonment and submit the sample results to EPA (MFA, Event 23 On-Property Wells Groundwater Monitoring Report, October 2016). All 11 samples were analyzed for total chromium. Total chromium was below the reporting limit in 9 of the 11 wells. The samples from the 2 wells that had quantifiable levels of total chromium were also analyzed for dissolved chromium and the single sample where dissolved chromium was detected above reporting limits was also analyzed for total and dissolved hexavalent chromium, dissolved sulfur and total sulfate. All samples collected were below clean up levels. Following review of the data, EPA approved the request for abandonment and Kelly closed the wells (MFA, October, 2016b).

In September 2016, Ecology sampled the 11 wells in the long-term monitoring well network located outside the FHC/Kelly property, and provided the results to EPA (Event 23 Long-Term Monitoring Report, December 2016). Total chromium was detected in only one well but the concentration was well below the cleanup level (Well B-87-8; 8.82 µg/L total chromium). Further analysis of this sample indicated that dissolved chromium and hexavalent chromium were also below the cleanup level.

Sulfate is a by-product of the reactions created by the ISRM treatment. Therefore, EPA reviewed sulfate data collected from groundwater samples collected in wells closest to the former source area. There is no MCL for sulfate or sulfur but a secondary MCL has been established to address aesthetic effects at elevated concentrations. Samples collected during 2016 indicated sulfate concentrations of 16.6 and 76.2 mg/L and sulfur concentrations from 3.8 to 24 mg/L. These levels are significantly below the secondary MCL (250 mg/L) and are not expected to create aesthetically displeasing impacts.

As discussed in Section II, EPA recently completed an attainment analysis for both soils and groundwater at the Site. The review, documented in the January 2018 FCOR, determined that the soil and groundwater RAOs and cleanup levels established in the 2001 RODA had been attained.

Site Inspection

The inspection of the Site was conducted by Panjini Balaraju, Project Manager, Ecology, on 11/29/2017 The purpose of the inspection was to assess the protectiveness of the remedy. No issues impacting current or future protectiveness were observed. Consistent with earlier communications with EPA, the landowner had decommissioned all of the on-Site monitoring wells. Off-Site wells appeared in good condition. It was also observed that the landowner had initiated construction activities at the Site. The new development is consistent with the

anticipated land use identified in the ROD and does not affect the protectiveness of the remedy.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Question A Summary:
Yes, the remedy is functioning as intended by the decision documents and RAOs have been achieved. As documented in the FCOR and discussed in Section IV of this FYR, in January 2018 EPA determined that the implementation of the remedy has achieved the degree of cleanup and protection specified in the 2001 RODA for all pathways of exposure. In addition, all remedial activities are complete, and the Site poses no unacceptable risk to human health or the environment in that no hazardous substances, pollutants, or contaminants remain above levels that would otherwise prohibit UU/UE. Thus, the remedy has functioned as intended in the RODA and no further CERCLA action is required, including institutional controls and Five-Year Reviews.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Question B Summary:
Yes, the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection are still valid.

Fluorinated or per-fluorinated compounds (PFAS) have historically been used at chrome plating operations to reduce the release of fumes into the air, and can be found in groundwater near such operations. PFAS are man-made substances that are highly mobile in groundwater, persistent in the environment, and toxic when inhaled. In the FCOR, EPA evaluated the potential use of PFAS at the Site, groundwater travel time for PFAS, and the location of downgradient wells and other potential receptors that could contain or be impacted by PFAS, and concluded that it was highly unlikely that PFAS were used at the Site. Thus, EPA found that further investigation into the potential use and release of PFAS is not warranted at this time.

EPA found that with respect to the toxicological information for groundwater cleanup, values have not changed since issuance of the RODA. However, the MTCA Level B cleanup levels for soils have been modified from 400 to 2,400 mg/kg for hexavalent chromium and from 80,000 to 120,000 mg/kg for trivalent chromium. As the cleanup levels adopted in the ROD are more protective than the current values, the soil cleanup levels identified in the RODA continue to be protective of human health.

Furthermore, the 3rd FYR found that the State's Chronic Surface Water Standard for total chromium, used to evaluate protectiveness of the groundwater immediately upgradient of the Columbia River, had been replaced by criteria for trivalent and hexavalent chromium. The RODA established a cleanup level of 10.5 µg/L for total chromium immediately adjacent to the Columbia River. The State has replaced the criterion with criteria for hexavalent chromium (10.0 µg/L) and trivalent chromium (site-specific calculation). Since 2007, the total chromium

concentration in the well closest to the river (well W99-5B) has been less than the reported detection limit 2.5 µg/L. In the 2013 FYR, EPA found that the highest levels ever recorded in the well closest to the river (W99-5B) was 9.9 µg/L total chromium, reported in April 2004. Based on the sample results at well W99-5B, EPA has determined that the total chromium concentration in groundwater immediately adjacent to the Columbia River is below 10.0 µg/L and thus, also below the newest criterion of 10.0 µg/L hexavalent chromium, and thus this change does not affect protectiveness of the remedy.

As part of the attainment assessment documented in the FCOR and referenced above (Status of Implementation) EPA reviewed the exposure assumptions, toxicity data, cleanup levels, and RAOs for the Site. EPA found that there were no changes to the exposure assumptions, toxicity data, cleanup levels, and RAOs that would affect the protectiveness of the remedial action.

QUESTION C: Has any **other** information come to light that could call into question the protectiveness of the remedy?

No.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU1 and OU2

Other Findings

In the January 2018 FCOR, EPA determined that the cleanup levels and RAOs identified in the 2001 RODA have been attained, and the remedial actions at the Site is complete. EPA also found that no further monitoring was required. As such, all remaining monitoring wells at the Site should be decommissioned and the State Superfund Agreement should be terminated. In addition, Kelly can be notified that the ICs identified in the Agreement and Covenant Not to Sue are no longer required, and may be removed via appropriate processes.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
Operable Unit 1	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy at OU 1 (soils/source area) is protective of human health and the environment and exposure pathways that could result in unacceptable risks have been eliminated as a result of soils/source area remedial action.	

Operable Unit 2	*Protectiveness Determination: Protective*
Protectiveness Statement: The remedy at OU 2 (groundwater) is protective of human health and the environment and exposure pathways that could result in unacceptable risks have been eliminated through remedial action.	

Sitewide Protectiveness Statement
Protectiveness Determination: Protective
Protectiveness Statement: Because the remedial actions at OU1 and OU2 are protective, the site is protective of human health and the environment.

VIII. NEXT REVIEW

This is the final FYR for the Site. EPA will not be conducting a fourth FYR because the soil and groundwater at all wells at the Site have attained the cleanup levels specified in the RODA. As documented in the FCOR and this FYR, the RAOs for the remedy have been achieved and there are no hazardous substances, pollutants or contaminants that remain above levels that could prevent UU/UE. Therefore, no further five-year reviews are required.

REFERENCES

Balaraju, Panjini PE, Washington Department of Ecology, 2017. Site Inspection Report, Frontier Hard Chrome Superfund Site, January 2017.

Clark County Washington. 2004; Notice of Agreement and Institutional Controls, Former Frontier Hard Chrome Site, filed July 17, 2004.

Kelly Development LLC and the U.S. EPA; 2004. Agreement and Covenant not to Sue (Docket No. CERCLA-10-2003-0009), March 1, 2004

Maul Foster and Alongi, Inc., 2016, Former Frontier Hard Chrome Event 23 On-Property Wells Groundwater Monitoring Report, Prepared for Grand Boulevard Investments, LLC. October 19, 2016

EPA. 2018. Final Close-Out Report for Frontier Hard Chrome Superfund Site, WAD53614988, City of Vancouver, Clark County, Washington. EPA Region 10. January 2018.

EPA. 2013. Second Five-Year Review Report for Frontier Hard Chrome Superfund Site, City of Vancouver, Clark County, Washington. EPA Region 10. January 2013.

U.S. EPA, 2008, Five-Year Review Report for Frontier Hard Chrome Superfund Site, January 29, 2008.

U.S. EPA, 2001, Amended Record of Decision, Frontier Hard Chrome Superfund Site, Vancouver, Washington; August 30, 2001.

U.S. EPA, 1988, EPA Superfund Record of Decision: Frontier Hard Chrome, Inc. EPA ID: WAD053614988 OU 02, Vancouver, Washington. July 1988.

U.S. EPA, 1987, EPA Superfund Record of Decision: Frontier Hard Chrome, Inc. EPA ID: WAD053614988 OU 01, Vancouver, Washington. December 1987

Weston Solutions, Inc., 2016, Frontier Hard Chrome Long-Term Monitoring Report, Event 23, Vancouver, Washington; Prepared for Washington State Department of Ecology, Olympia, Washington. December 2016

FIGURES

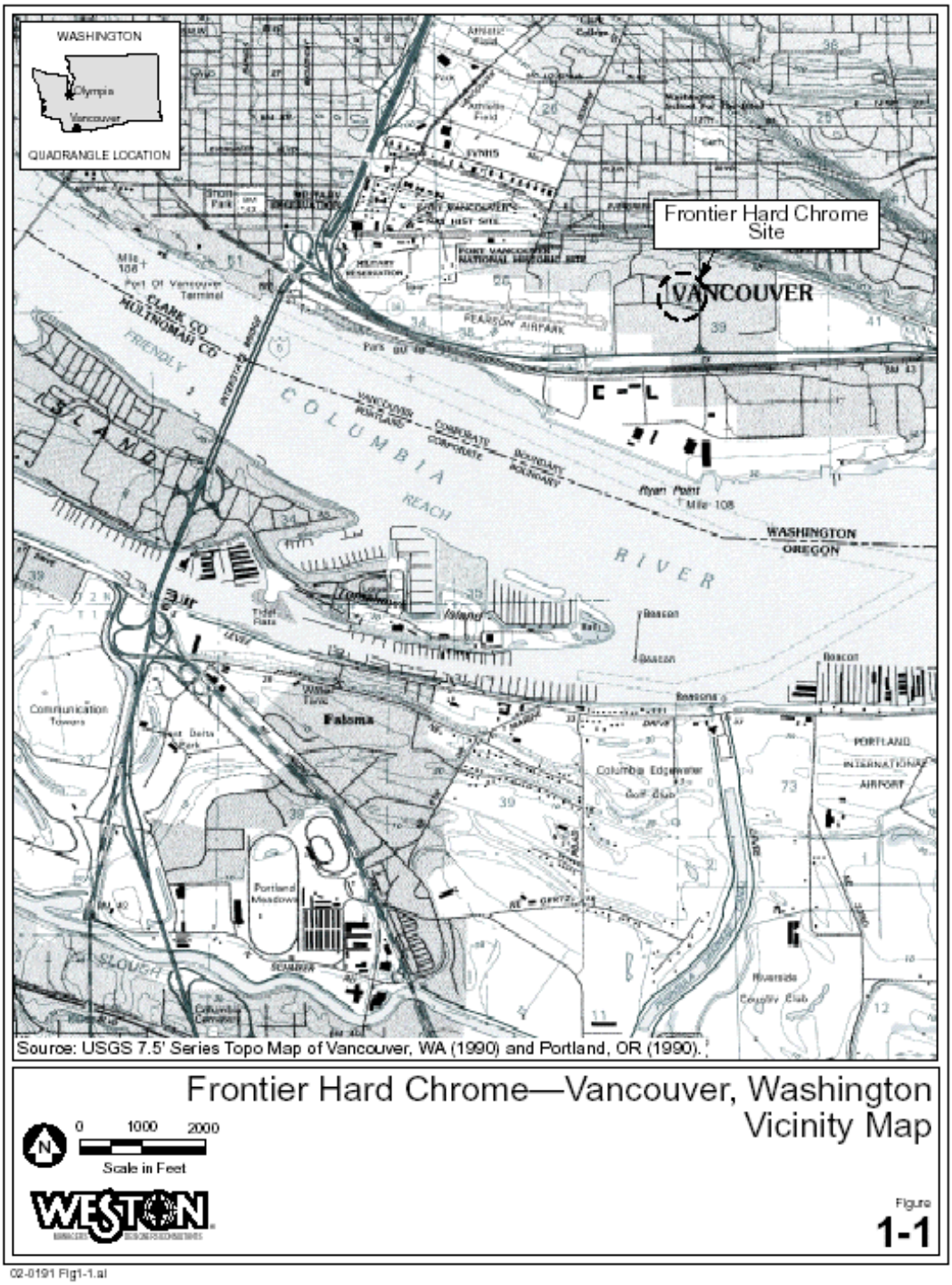
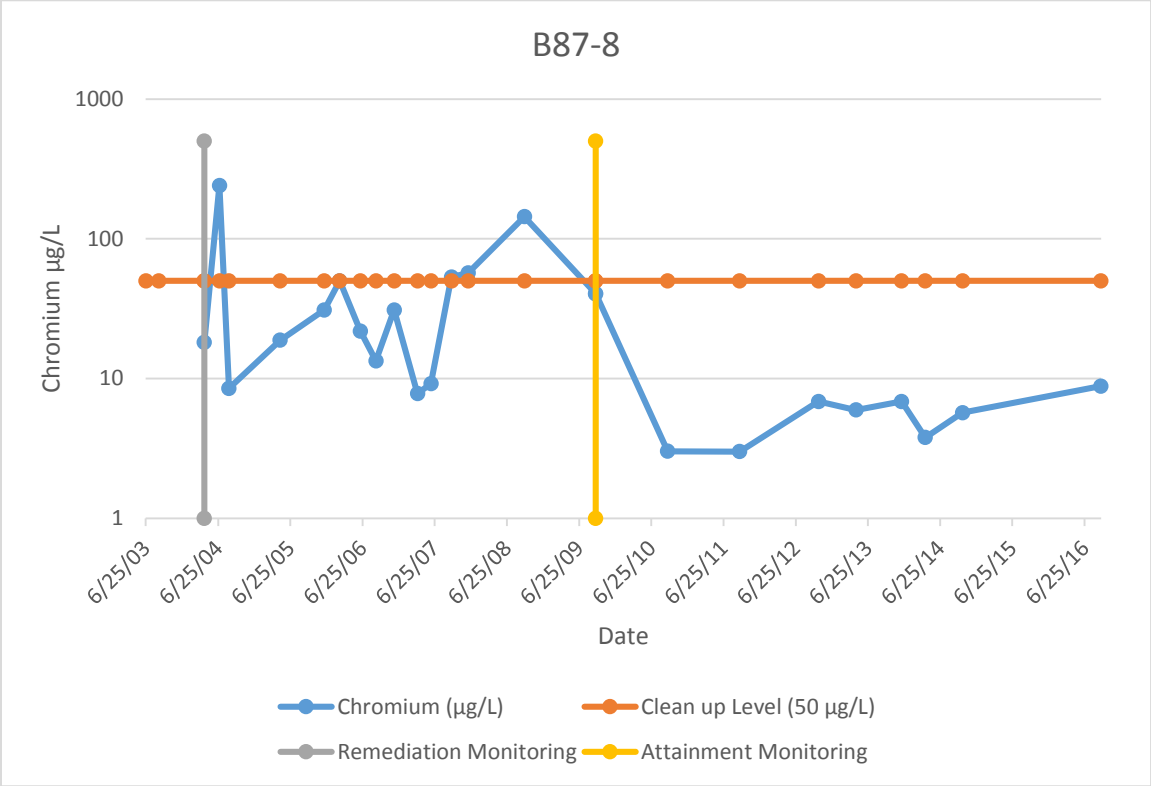


Figure 1: Site Vicinity Map

Figure 2: Frontier Hard Chrome Superfund Site Groundwater Monitoring Network (well locations highlighted in yellow).

Figure 3: Total Chromium concentration (µg/L) vs Time trend plot. Remediation monitoring started in April15, 2004 and Attainment monitoring began in September 16, 2009. The groundwater remediation or treatment started on June 25, 2003 and the treatment ended on August 29, 2003.



Appendix A

PUBLIC NOTIFICATION

Website:

Start of 3rd Five-Year Review
The Environmental Protection Agency is starting the latest review for the Frontier Hard Chrome Superfund Site. The cleanup was completed in 2003. Recent data indicate that groundwater at the Site has achieved the cleanup goals. Every five years EPA assesses the site to make sure the cleanup continues to be protective of human health and the environment.

Comment and input sought
We want to keep you informed. Also, you may have information helpful to the review team. If you have anything you would like us to consider during our review or if you have questions, please contact Jeremy Jennings, EPA Remedial Project Manager, at 206-553-2724 or jennings.jeremy@epa.gov.
Please submit your comments by **January 12, 2018.**

Postcard:

EPA
United States Environmental Protection Agency
Region 10

Frontier Hard Chrome Superfund Site
Vancouver, Washington
December 2017

Cleanup to be reviewed
The Environmental Protection Agency is starting the latest review for the Frontier Hard Chrome Superfund Site. The cleanup was completed in 2003.
Recent data indicate that groundwater at the Site has achieved the cleanup goals. EPA then assesses the site every five years to make sure the cleanup continues to be protective of human health and the environment.

Comment and input sought
We want to keep you informed. Also, you may have information helpful to the review team. If you have anything you would like us to consider during our review or if you have questions, please contact Jeremy Jennings, EPA Remedial Project Manager, at **206-553-2724** or **jennings.jeremy@epa.gov**.

For more information go to:
https://www.epa.gov/superfund/frontier-chrome

TTD/TTY users may call the Federal Relay Service at 1-800-877-8339. Then please give the operator Jeremy Jennings' number: 206-553-2724.

Appendix B

SITE INSPECTION REPORT

Site Name: Frontier Hard Chrome	**Address:** 113 Y Street, Vancouver, Washington
Date of Inspection: November 29, 2017	**Agency:** Department of Ecology
Inspection Completed by: Panjini Balaraju	**Title:** Environmental Engineer-5

Introduction

The purpose of the field trip was to conduct a site inspection of Frontier Hard Chrome (FHC) Superfund Site located at 113 Y Street in Vancouver, Washington. This Site inspection was conducted as a part of the third five-year review to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The U.S. Environmental Protection Agency (EPA) will prepare a five-year review report pursuant to Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), consistent with the National Contingency Plan (NCP), Title 40 of the Code of Federal Regulations (CFR), Section 300.430(f)(4)(ii), and considering EPA policy.

Site History

Previously the Site was occupied by two chromium plating businesses. The Pioneer Plating operated at the site from 1958 to 1970. The Site was then occupied by Frontier Hard Chrome and operated from 1970 until 1983. The chromium plating operational activities and discharge of chromium contaminated waste into an on property dry well impacted the soils and groundwater with chromium contamination at the Site. In 1983, the Site was listed on the National Priority List (NPL) under CERCLA. Following the remedial investigation and feasibility study, EPA has successfully implemented all appropriate response actions at the FHC in accordance with the December 1987 and July 1988 Record of Decisions and the August 30, 2001 Amended Record of Decision issued at the Site. Currently the EPA is in the process of delisting the Site from the NPL and Closing-Out the Site.

Site Inspection

I arrived at the Site at about 10:00 A.M. The weather was clear and sunny with an approximate temperature of 52 degrees. Upon my arrival I had a meeting with Jeff Dean of JH Kelly Company, who was supervising the construction of a new building on the Site. I discussed with him about the details of the building construction and the other property developments. Prior to starting of the property development, the Maul Foster decommissioned a total of 40 wells with in the foot-print of the new building and on the eastern portion of the Site with EPA and Ecology's approval. The property development included a 57,000 square foot fabrication building (steel and concrete, photos 1 through 6), an employee parking area (photo 1 and photo 3), sanitary sewer pump station, and bioretention facilities (photo 10 and photo 11). The new building structure was completed and still the construction work was being conducted inside the building (photos 12 through 15). The new building is connected to the west side of the existing two-story office building via an enclosed corridor (photo 9). The eastern portion of the Site (after wells were decommissioned) area has been paved with asphalt to use it as a storage area in the future (photo 7 and photo 8). The western portion of the site (west of the new building) was developed as employee parking area and was almost completed with asphalt pavement (photo 1 and photo 3). Construction of a bioretention facility and sanitary pump station were still in the initial construction stages.

As stated above, all the on-property wells were abandoned as per the requirements of WAC 173-160 with EPA and Ecology's approval. The property development was started in February 2017 and scheduled to be completed in January 2018. Once the building and other construction activities are completed, the building will be used for pre-pipe fabrications (steel, copper, and stainless), and also bathroom fixtures (showers, toilets, etc.) manufacturing business. Also portion of the building/property will be used for job staging (equipment's, pre-fabricated items etc.).

I also checked some of the off-property groundwater monitoring wells that needs to be decommissioned (photos 16 through 18). Following the Site inspection, I left the Site at about 11:00 A.M. The Property development and some of the groundwater monitoring well photos are enclosed.

FRONTIER HARD CHROME SITE INSPECTION PHOTOS

Photo 1: West Side of the New Building and Employee Parking Lot – From Northwest (from "Y" Street)

Photo 2: West Side of the New Building – From Southwest (from East 1st Street)

Photo 3: New Building and Employee Parking Lot – From North

Photo 4: New Building and the East 1st Street – From Southeast (from Fred Myer Parking Lot)

Photo 5: Existing Office Building and Eastern Portion of the Site – From Northeast

Photo 6: New Building and Eastern Portion of the Site, Future Storage Area – From the East

Photo 7: Eastern Portion of the Site and the Existing Office Building – From the North

Photo 8: New Building and Eastern Portion of the Site, Future Storage Area – From the East

Photo 9: Connecting Corridor, New Building and the Existing Office Building–From the North

Photo 10: Construction of Bioretention Area next to the "Y" Street – From the North

Photo 11: Construction of Bioretention Area next to the "Y" Street – From the West

Photo 12: Construction In-side the New Building – From the South

Photo 13: Construction In-side the New Building – From the Northeast

Photo 14: Construction In-side the New Building – From the North

Photo 15: Construction In-side the New Building – From the West

Photo 16: Groundwater Monitoring Wells W85-6A and W85-6B identified for decommissioning

Photo 17: Groundwater Monitoring Wells W85-5A and W85-5B identified for decommissioning

Photo 18: Groundwater Monitoring Well W98-21A & B identified for decommissioning next to Highway-14